



Update on ENERGY STAR® Dehumidifier Specification Revision

Andrew Fanara

US Environmental Protection Agency

fanara.andrew@epa.gov

Presentation Outline



- Market status and review of current specification
- Revision options under consideration
- Next steps and timeline

Market Snapshot



- 2003 shipments of dehumidifiers approximately 1,311,039 units*
- 2003 installed base approximately 11,308,000 units**
- On average, estimated 12% growth in annual shipments over past 5 years*
- Annual shipments best approximation of annual installed base
- Over 180 dehumidifier models currently available in market-place***

*Source: *Appliance Statistical Review: A Ten Year 1994-2003 Review of the U.S. Appliance Industry*, and extrapolations based on the data

**Estimates from CCAP data

***Source: AHAM's May 2004 Directory of Certified Dehumidifiers and ENERGY STAR Qualified Products list

Current ENERGY STAR Dehumidifiers Specification



Product Capacity (L/day)	Energy Factor Under Test Conditions (L/kWh)
$L/\text{day} < 10$	≥ 1.20
$10 \leq L/\text{day} < 25$	≥ 1.30
$25 \leq L/\text{day} \leq 35$	≥ 1.50
$36 \leq L/\text{day} \leq 57$	≥ 2.25

- Effective January 1, 2001
- 13 manufacturing partners/107 qualified models to-date
- Qualified models currently between 10% - 23% more efficient than standard models; save about \$20/year

ENERGY STAR Products in the Market-Place



Product Capacity (L/day)	Number of Qualified Products	Number of Manufacturers With Qualified Products	Average Retail Price of Products
L/day < 10	2	1	\$130
$10 \leq \text{L/day} < 25$	81	11	\$160
$25 \leq \text{L/day} \leq 35$	22	9	\$220
$36 \leq \text{L/day} \leq 57$	2	1	\$1,200

Variety of qualified models readily available at all major retailers

Several utility programs in place for ENERGY STAR qualified dehumidifiers

Market Penetration of ENERGY STAR Qualified Dehumidifiers



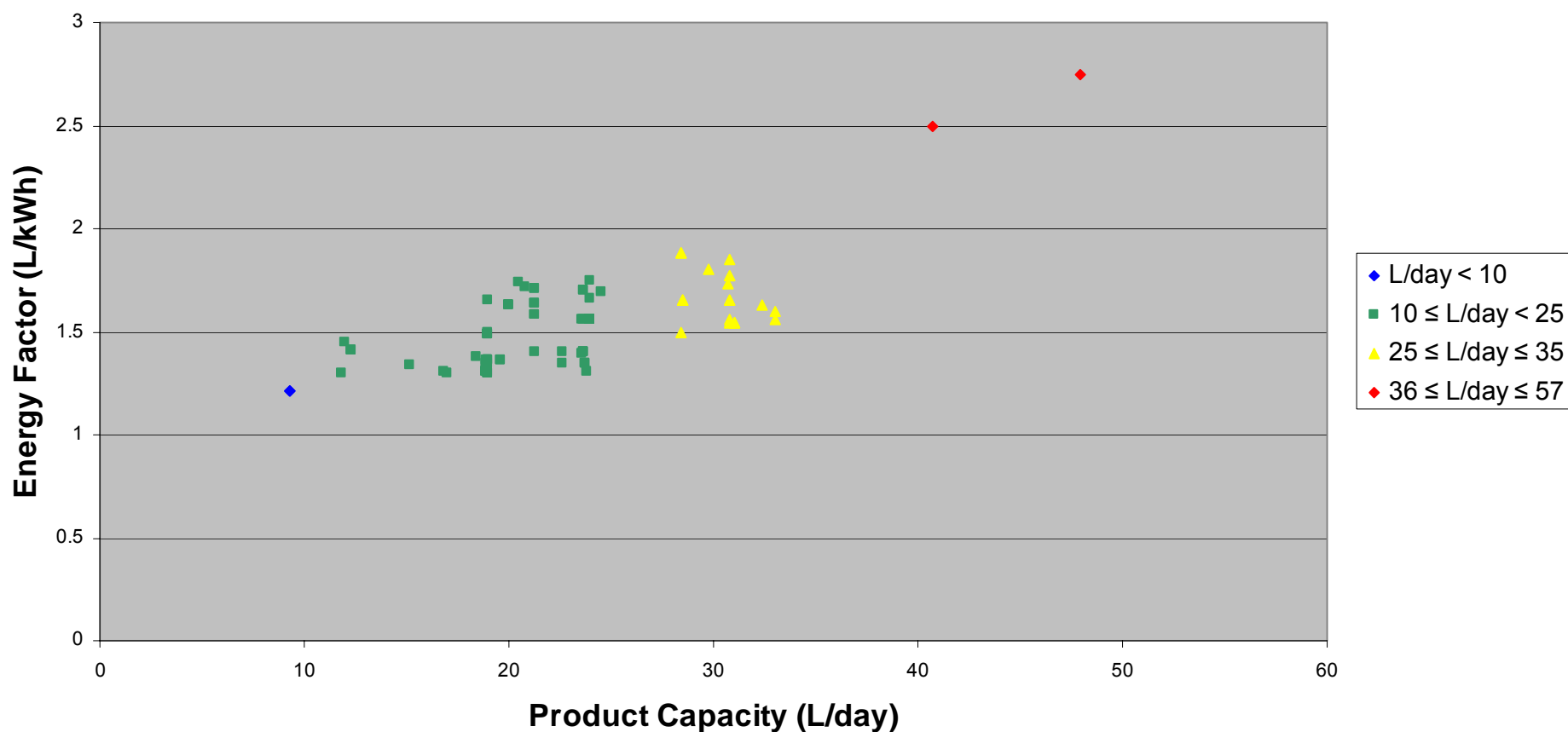
- Estimated ENERGY STAR market penetration*:
 - 0% for $L/\text{day} < 10$
 - 76% for $10 \leq L/\text{day} < 25$
 - 76% for $25 \leq L/\text{day} \leq 35$
 - 12% for $36 \leq L/\text{day} \leq 57$
- Dehumidifiers specification has been a success
- Major manufacturers are ENERGY STAR partners
- Time to revise specification
 - Differentiation in the market
 - Additional savings

* Source: Collection of 2003 unit shipment data of ENERGY STAR qualified models

Energy-Efficiency Range of ENERGY STAR Qualified Dehumidifiers



Energy Factor versus Product Capacity for ENERGY STAR® Qualified Dehumidifiers



Revision Option 1



- Leave energy factors for lowest and highest capacity units unchanged
- Raise energy factors for two middle capacities by 0.3 L/kWh respectively

Product Capacity (L/day)	Option 1 Energy Factor Under Test Conditions (L/kWh)
$L/\text{day} < 10$	1.2 (no change)
$10 \leq L/\text{day} < 25$	1.6 (changed from 1.3)
$25 \leq L/\text{day} \leq 35$	1.8 (changed from 1.5)
$36 \leq L/\text{day} \leq 57$	2.25 (no change)

Revision Option 2



- Redefine capacities in pints/day
- Add an additional middle capacity level
 - Realize inherent increase in efficiency with capacity
- Leave energy factors for lowest and highest capacity units unchanged

Product Capacity (Pints/day)	Option 1 Energy Factor Under Test Conditions (L/kWh)
Pints/day < 20	1.2 (no change)
$20 \leq$ Pints/day < 35	1.4
$35 \leq$ Pints/day < 55	1.6
$55 \leq$ Pints/day < 75	1.8
$75 \leq$ Pints/day < 120	2.25 (no change)

Revision Option 3



- Redefine capacities in pints/day
- Leave energy factors for lowest and highest capacity units unchanged
- Energy factors for middle capacity levels calculated through linear formula; follows inherent relationship between efficiency and capacity

Product Capacity (Pints/day)	Option 3 Energy Factor Under Test Conditions (L/kWh)
Pints/day < 20	1.2 (no change)
$20 \leq \text{Pints/day} \leq 75$	$EF = 1.1 + (\text{Capacity} * 0.011)$ Capacity in pints/day
$75 \leq \text{Pints/day} < 120$	2.25 (no change)

Next Steps: Stakeholder Input



- Want to get feedback on market impacts of these different options
 - EPA open to other options

Things to Think About:

- Should EPA revisit levels for lowest and highest capacity units?
 - Only 4 qualified products in these capacities to-date
 - Possibly allow more units to qualify by raising the levels?
- Should EPA redefine capacities in pints/day?
- New technologies or product-types that EPA should consider?

Tentative Time-line



Oct. 4, 2004: ENERGY STAR Appliance Partner Meeting, Chicago, IL

Late Oct. 2004: Distribute Draft 1 (Version 2.0) dehumidifier specification for comment/feedback

Mid Nov. 2004: Potential industry meeting in Washington, DC to discuss Draft 1

Late Dec. 2004: Distribute Draft 2 (Version 2.0) specification for comment/feedback

Late Feb. 2005: Issue Final Version 2.0 specification

March 2005: Launch Final Version 2.0 specification at International Housewares Show

November 2005: Tentative effective date of Version 2.0 specification